Title (en)

VARIABLE THICKNESS DIAPHRAGM FOR A WIDEBAND ROBUST PIEZOELECTRIC MICROMACHINED ULTRASONIC TRANSDUCER (PMUT)

Title (de)

MEMBRAN MIT VARIABLER DICKE FÜR EINEN BREITBANDIGEN ROBUSTEN PIEZOELEKTRISCHEN MIKROGEFERTIGTEN ULTRASCHALLWANDLER (PMUT)

Title (fr)

DIAPHRAGME D'ÉPAISSEUR VARIABLE POUR UN TRANSDUCTEUR ULTRASONORE MICRO-USINÉ PIÉZOÉLECTRIQUE ROBUSTE À LARGE BANDE

Publication

EP 3110628 B1 20190703 (EN)

Application

EP 15754603 A 20150227

Priority

- US 201461945906 P 20140228
- US 2015018076 W 20150227

Abstract (en)

[origin: WO2015131083A1] A diaphragm for a piezoelectric micromachined ultrasonic transducer (PMUT) is presented having resonance frequency and bandwidth characteristics which are decoupled from one another into independent variables. Portions of at least the piezoelectric material layer and backside electrode layer are removed in a selected pattern to form structures, such as ribs, in the diaphragm which retains stiffness while reducing overall mass. The patterned structure can be formed by additive, or subtractive, fabrication processes.

IPC 8 full level

B06B 1/06 (2006.01); **G10K 9/122** (2006.01); **G10K 13/00** (2006.01); **H01L 41/09** (2006.01)

CPC (source: EP US)

B06B 1/0622 (2013.01 - EP US); **B06B 1/0666** (2013.01 - EP US); **G10K 9/121** (2013.01 - US); **G10K 9/122** (2013.01 - EP US); **G10K 13/00** (2013.01 - EP US); **H10N 30/082** (2023.02 - US); **H10N 30/085** (2023.02 - US); **H10N 30/2047** (2023.02 - EP US); **H10N 30/308** (2023.02 - US); **H10N 30/50** (2023.02 - US); **H10N 30/853** (2023.02 - US)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

WO 2015131083 A1 20150903; EP 3110628 A1 20170104; EP 3110628 A4 20171011; EP 3110628 B1 20190703; US 10522737 B2 20191231; US 11462677 B2 20221004; US 11800804 B2 20231024; US 2016315247 A1 20161027; US 2020194661 A1 20200618; US 2023053609 A1 20230223

DOCDB simple family (application)

US 2015018076 W 20150227; EP 15754603 A 20150227; US 201615135321 A 20160421; US 201916695565 A 20191126; US 202217896794 A 20220826